

State of Illinois  
Department of Transportation  
Bureau of Materials and Physical Research  
Springfield

POLICY MEMORANDUM

Revised: <a href="#">February 1, 2010</a>	24-08.1
This Policy Memorandum supersedes number <a href="#">24-08.0</a> dated <a href="#">January 1, 2008</a> .	

TO: REGION/DISTRICT ENGINEERS AND HIGHWAY BUREAU CHIEFS

SUBJECT: EPOXY COATING PLANT CERTIFICATION PROCEDURE

**1.0 SCOPE**

- 1.1 This procedure shall apply to all Producers that supply epoxy coated steel reinforcing bars, dowel bars and/or accessories to State projects.
- 1.2 No epoxy coated steel reinforcing bars, dowel bars and/or accessories may be used unless the Producer has been certified.

**2.0 PURPOSE**

- 2.1 To establish a procedure whereby Producers may supply epoxy coated steel reinforcing bars, dowel bars and/or accessories based on their status as a Certified Producer.
- 2.2 To set forth the procedures and conditions for Producer certification.

**3.0 APPLICABLE SPECIFICATIONS**

- 3.1 AASHTO M284, "Standard Specification for Epoxy-Coated Reinforcing Bars: Materials and Coating Requirements" (current year issued).
- 3.2 ASTM A706/A706M, "Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement" (current year issued).
- 3.3 ASTM A775, "Standard Specification for Epoxy-Coated Reinforcing Bars" (current year issued).
- 3.4 ASTM D3963 "Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars" (current year issued).
- 3.5 AASHTO M254, "Corrosion-Resistant Coated Dowel Bars" (current year issued).
- 3.6 Concrete Reinforcing Steel Institute (CRSI), "Voluntary Certification Program for Fusion-Bonded Epoxy Coating Applicator Plants".
- 3.7 Illinois Department of Transportation Standard Specifications for Road and Bridge Construction (current year issued).

#### 4.0 DEFINITIONS

ACCESSORIES – Dowel Baskets, Transverse Bar Assemblies (excluding bar supports).

BUREAU - Bureau of Materials and Physical Research, Springfield, Illinois.

CRSI – Concrete Reinforcing Steel Institute.

CERTIFIED PRODUCER - A Producer that has met the requirements for certification under this policy and is allowed to supply epoxy coated steel reinforcing bars, dowel bars and/or accessories to Illinois highway projects.

DECERTIFIED PRODUCER - A Producer that has had certified status rescinded because requirements warranting certification have not been maintained. A Decertified Producer is not allowed to supply epoxy coated steel reinforcing bars, dowel bars and/or accessories to Illinois highway projects.

DEPARTMENT - Illinois Department of Transportation.

ENGINEER - The Director of Highways of the Illinois Department of Transportation or authorized representative limited by the particular duties entrusted to that person.

INSPECTION EXPENSE - The cost of inspection for plant certification will be borne by the Producer. A Producer intending to supply epoxy coated steel reinforcing bars, dowel bars and/or accessories to Illinois projects shall contact the Engineer of Materials and Physical Research, Bureau of Materials and Physical Research, 126 East Ash Street, Springfield, Illinois 62704, to arrange for the required sampling. All samples to be tested by the Bureau will be shipped at the Producer's expense.

MISTIC – Materials Integrated System for Test Information and Communication.

NON-CERTIFIED PRODUCER - A Producer that does not meet certification requirements or has not been checked for certification and is not qualified to supply epoxy coated steel reinforcing bars, dowel bars and/or accessories to Illinois highway projects.

PRODUCER - Epoxy coating plant.

PRODUCER CLASSIFICATION - A Producer under this procedure will be classified as Certified, Decertified, or Non-Certified.

REGION/DISTRICT - Bureau of Materials located at each Illinois Department of Transportation District.

## 5.0 CERTIFICATION PROCEDURE

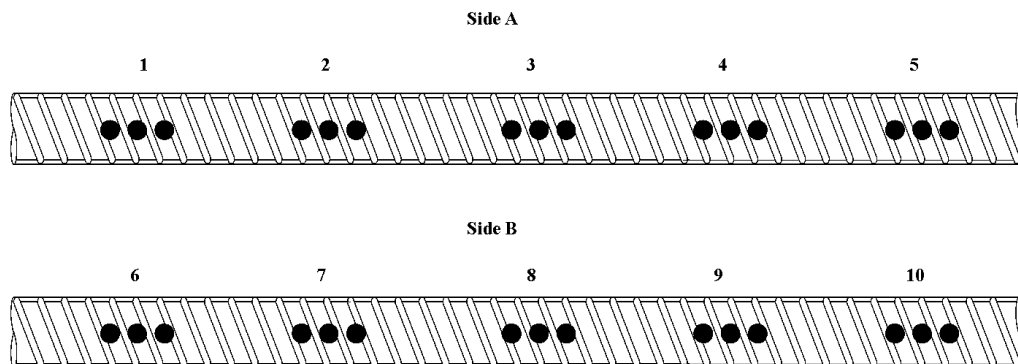
- 5.1 GENERAL - Certification shall be based on satisfactory compliance of heats of coated bar tested to standard specifications; satisfactory comparison of test results between the Producer laboratory and the Bureau laboratory; and the Producer must be a certified plant for coating by CRSI. The producer shall make available to the Engineer their "Plant's Quality Control Policy and Procedures" as outlined in the CRSI program. The method of certification shall consist of both the Producer/Supplier and the Bureau testing comparable sample bars for conformance to specifications. Primary considerations are a comparison of the results obtained by the Producer laboratory and the Bureau laboratory and a comparison of test data to specified product test limits. Test data from the laboratories must compare within the limits specified.
- 5.1.1 TRAINING –The quality control inspectors shall successfully complete the Concrete Reinforcing Steel Institute's "Recommended Quality Control Practices for the Production of Epoxy-Coated Steel Reinforcement".
- 5.2 SAMPLING AND TESTING PROCEDURE - The Engineer will select samples and witness thickness and bend tests at the location of the Producer. Thickness test shall be conducted in accordance with ASTM A775. Bend testing shall be performed using both ASTM A775 and ASTM A706 specifications. Bend testing utilizing the ASTM A775 pins may be waived if the epoxy coating does not fail when bent around the ASTM A706 pins. The coated bar shall be sampled based on sizes, grades, and heats in stock. Due to the deformation spacing and the probe diameter of the magnetic thickness gage, selected bar sizes for rebar will be #6 (19) and greater when available. The date and time shall be prearranged by the Bureau and the Producer.
- 5.2.1 SAMPLING FREQUENCY - Samples shall be taken from 3 different epoxy coated bars and/or dowels from 10 different heats. Each sample shall be from a different bar size when available. When requested by the Engineer, two black bars shall be sampled from the same heats and submitted to the Bureau for bend tests.
- 5.2.2 SAMPLE SIZE - The sample size shall not be less than 12 ft (4 m). Each sample bar shall be tagged with a unique identification number. A 6 ft (2 m) specimen shall be cut from the sample bar for the epoxy coating thickness measurements. Two 3 ft (1 m) specimens shall be cut from the sample bar for the A706 bend test and one for the A775 bend test if necessary. All test specimens cut from the sample bar shall be marked with that sample's identification number.

**SAMPLE TESTS** - One (1) specimen from each sample shall be tested by the Producer and the following test results shall be signed and submitted to the Bureau laboratory.

Information/Test	Unit
Bar Number	Numerical (1 thru 30)
Bar Size	English
Heat Number	Unique to bar producer
Thickness reading	Mils
A706 Bend Test	Pass/Fail
*A775 Bend Test	Pass/Fail

\* If necessary due to A 706 failure.

A minimum of five recorded measurements shall be taken approximately evenly spaced along each side of the test specimens (a minimum of ten recorded measurements per bar). A single recorded steel reinforcing bar coating thickness measurement is the average of three individual gage readings obtained between four consecutive deformations. This form shall be signed and submitted to the Bureau laboratory. In addition to the bend specimens the original bar tested by the producer for coating thickness shall be sent to the Bureau for comparative tests and shall be marked according to the following diagram.



### 5.3 **PRODUCER RESPONSIBILITY**

- 5.3.1 Sample specimens shall be cut and identified by the Producer in the presence of the Engineer, and all necessary facilities shall be made available to the Engineer to perform his assigned duties. The Producer plant facilities, witnessing of tests, and test records shall be accessible to the Engineer or his representative at all times.
- 5.3.2 The plant laboratory test equipment shall be maintained in good working order and calibrated as required by the CRSI program.
- 5.3.3 Magnetic thickness gauges shall be calibrated to the appropriate shims as supplied by the manufacturer a minimum of once per day.
- 5.3.4 The Producer through his supplier shall be responsible for supplying source identification tags containing the following: purchase orders, heat numbers, bill of lading, and mill certification as required by the Engineer for identification and reporting.

- 5.4 BUREAU RESPONSIBILITY - The Bureau shall test the specimens received from the Producer and determine if Certified status shall be granted. The Producer will be notified in writing as to test results and Producer Classification status. Copies of the updated Certified Producer list will be distributed to all Regions/Districts.

## 6.0 REQUIREMENTS FOR CERTIFICATION

- 6.1 TESTS AND SPECIFICATIONS - The methods of tests and specification requirements shall be in accordance with the applicable specifications.

- 6.2 LABORATORY COMPARISON REQUIREMENTS - The test results for individual (average of the set of three tests per location) readings obtained at each laboratory shall vary between laboratories no more than the following:

Epoxy Coating Thickness.....	1.5 mils
ASTM A775 Bend.....	Pass/Fail
ASTM A706 Bend.....	Pass/Fail

Note: When dowel bars are used for the certification process, ASTM A775 specifications shall be used bend testing.

- 6.2.1 The difference in average test results from the same bar at each laboratory shall vary between laboratories by no more than the following:

Epoxy Coating Thickness .....	.5 mils
ASTM A775 Bend.....	Pass/Fail
ASTM A706 Bend.....	Pass/Fail

Note: When dowel bars are used for the certification process, ASTM A775 specifications shall be used bend testing.

- 6.2.2 Any coated bar from a heat failing to meet Paragraphs 6.2 or 6.2.1 may be resampled. The resampling shall consist of 3 additional coated bars from the same heat.

- 6.2.3 Certified Producer status will be granted if 90% of comparable test values meet the limits of 6.2 and 6.2.1. A Producer that fails to meet this requirement is considered a Non-Certified Producer.

- 6.3 QUALITY REQUIREMENTS - No more than 1 heat shall have any of the average thickness test results, as determined in Paragraph 6.2, outside the specification limits.

- 6.3.1 The failure of more than 1 specimen per heat to meet the ASTM A775 bend test requirements will constitute rejection of that heat.

- 6.3.2 Failure to meet Paragraphs 6.3 or 6.3.1 will constitute failure to obtain Certified Producer status.

- 6.4 All resampled heats or additional heats sampled shall be included in the limits for quality evaluation as specified in Paragraphs 6.3 and 6.3.1.

## 7.0 REQUIREMENTS DURING PERIOD OF CERTIFICATION

7.1 ENGINEER RESPONSIBILITY - Within each year, each Region/District shall take a minimum of 6 random samples from material supplied by each Certified Producer plant supplying material to that Region/District and assigned to or designated for a State job. The samples shall include as many grades and sizes as are available. The samples shall be taken from different shipments and may be taken at the jobsite, the epoxy coating plant, or any other location approved by the Engineer. The samples shall be sent to the Bureau laboratory for testing.

7.2 BUREAU RESPONSIBILITY - The Bureau shall be responsible for all testing and evaluation of the samples. Written notice of Producer Classification will be sent to both the Producer and all Regions/Districts.

7.3 PRODUCT CERTIFICATION- Documents prepared by the Producer that lists all chemical and physical test results as required by the applicable specifications. The following example outlines required documentation:

1) Coating Plant

- Documentation from coating plant
  - Plant meets specification requirements
    - Epoxy coater CRSI certified
  - Product coated in the USA
  - Product meets required specifications
- Documentation from steel mill
  - [Documentation found in Policy Memorandum 26-08.0](#)

2) Fabricator (if applicable)

- Documentation from fabricator
  - Fabricated in the USA
  - Product meets contract plans
- Documentation from coating plant (if applicable)
- Documentation from steel mill

7.4 ACCEPTANCE UNDER CERTIFIED PRODUCER STATUS - Under Certified Producer status, plant stock will be checked periodically to the conditions stated herein. Field acceptance of epoxy coated reinforcement bars and/or dowel bars will be based on evidence that the products were manufactured and shipped by a Certified Producer. All shipments of epoxy coated reinforcement bars and/or dowel bars to Illinois projects must be clearly identified, as required in Paragraph 5.3. Reliability of data will be verified periodically by comparison tests and random samples from the jobsite.

7.5 RESIDENT ENGINEER / RESIDENT TECHNICIAN RESPONSIBILITY - The Resident Engineer / Resident Technician shall make positive identification of the epoxy coated bar using identification marks or source identification tags, and the bill of lading or invoice. Material from a Certified Producer shall be accepted and reported to the Region/District Materials Engineer for entry into MISTIC.

## 8.0 EVALUATION OF RANDOM SAMPLES

8.1 QUALITY REQUIREMENTS A Certified Producer may be placed on Decertified Producer status when;

(a) The test results from random samples vary outside the following limits:

Epoxy Coating Thickness .....	7 – 12 mils (bar size #3-#5) 7 – 16 mils (bar size >#5)
ASTM A775 Bend.....	Pass/Fail
ASTM A706 Bend.....	Pass/Fail

(b) When shipments are received at the jobsite without proper identification as required in Paragraph 5.3.4

8.2 When random samples fail to meet the requirements of Paragraph 8.1 a Structural Engineer will be required to evaluate and approve the use of the failing materials. The cost of the Structural Engineer may be borne by the epoxy coating plant.

## 8.3 CONTROL LIMITS

(a) No more than 3 random thickness test samples may fail the applicable specification in Paragraph 8.1(a) within a one year period. In the event of a failure, the coating plant will be notified by letter requesting an investigation into the cause of failing results along with corrective action.

(b) No more than 3 random test samples may fail the bend test required by ASTM A775, with allowance for retests where included in the Material Specification within a one year period. In the event of a failure, the coating plant will be notified by letter requesting an investigation into the cause of failing results along with corrective action.

8.4 Failure to meet requirements of Paragraphs 8.1 or 8.2 will place the Producer in a Decertified Producer status.

## 9.0 GAINING CERTIFICATION AFTER BEING ON NON-CERTIFIED OR DECERTIFIED PRODUCER STATUS

A Producer on Non-Certified Producer status may gain Certified Producer status provided the producer meets the testing procedures required for Certified Producer status. A Non-Certified Producer or a Decertified Producer may request a retest for Certified Producer status provided the producer can demonstrate proof to the Engineer that causes of the deficiencies have been remedied.

## 10.0 CONDITIONS OF CERTIFIED PRODUCER/SUPPLIER STATUS

- 10.1 PROCEDURE - The same procedure (Sections 5.0 and 6.0) required to obtain Certified Producer status will be used to gain renewal of Certified Producer status. Certified status for a new Producer determined under Sections 5.0 and 6.0 will be in effect for a 12-month period unless decertified under conditions of Sections 7.0 and 8.0. At that time, a second certification check to Sections 5.0 and 6.0 will be performed. A plant successfully meeting certification requirements for 2 consecutive annual checks will retain certified status for a 24-month period unless decertified under conditions of Sections 7.0 and 8.0. At that time, another check to Sections 5.0 and 6.0 will be made. A plant meeting 3 consecutive (annual or biennial) certification checks will retain certified status for a 36-month period unless decertified under Sections 7.0 and 8.0. Thereafter certified status will remain on a 3-year basis unless decertification occurs. Certification checks will then be made every 3 years. Upon decertification, the plant will revert to a new plant status, and all variable certification periods and checks will apply. A plant decertified a second time under Sections 7.0 and 8.0 within one year of the first decertification will be on non-certified status for a minimum of one year from the date of the second decertification. After one year, a Decertified Producer may request a retest for Certified Producer status provided he/she can demonstrate proof to the Engineer that the causes for the deficiencies have been remedied.

## 11.0 REPORTING

A copy of the shipping orders or invoice showing job identification, size, grade, heat, and weight by heat shall be provided to the Resident Engineer and the Region/District Materials Engineer. The Resident Engineer shall make positive identification between the bar identification marks, or identification tags, and the Certified Producer/Supplier list. Materials from a Certified Producer will be accepted and entered into the MISTIC report system by the Region/District Materials Engineer.



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